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PUBLIC LANDS

BUREAU OF LAND MANAGEMENT



ANNIVERSARY ISSUE

Our PUBLIC LANDS



"Conservation is a state of harmony between men and land. By land it is meant all of the things on, over, or in the earth. Harmony with land is like harmony with a friend; you cannot cherish his right hand and chop off his left. That is to say, you cannot love game and hate predators; you cannot conserve the waters and waste the range; you cannot build the forest and mine the farm. The land is one organism. Its parts, like our own parts, compete with each other and cooperate with each other. The competitions are as much a part of the inner workings as the cooperations. You can regulate them—cautiously—but you cannot abolish them."

—ALDO LEOPOLD

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COVER

From the factory towns of New England, from the city streets of the East Coast, from the war-ravaged farms of the South—they came on foot and in the creaking covered wagons, across the prairies and mountains, to the new land of the West. The cover painting, by W. H. Hinton, reproduces a typical scene of the pioneer's trek.

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DEPARTMENT OF THE INTERIOR
Stewart L. Udall, Secretary
BUREAU OF LAND MANAGEMENT
Karl S. Landstrom, Director

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America the Beautiful

O beautiful for spacious skies,
For amber waves of grain,
For purple mountain majesty
Above the fruited plain!

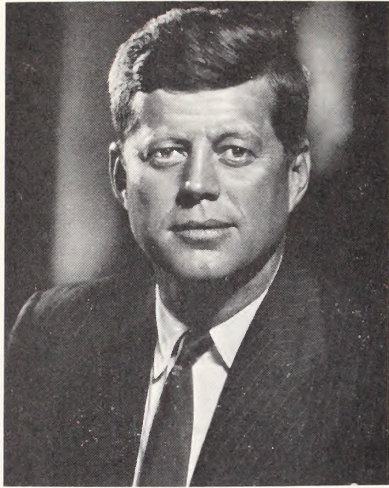
America! America!
God shed his grace on thee,
And crown thy good with brotherhood
From sea to shining sea!

O beautiful for pilgrims' feet,
Whose stern impassioned stress
A thoroughfare for freedom beat
Across the wilderness!

America! America!
God mend thine every flaw,
Confirm thy soul in self control,
Thy liberty in law!

O beautiful for patriots' dream
That sees throughout the years
Thine alabaster cities gleam
Undimmed by human tears!

—KATHERINE LEE BATES



Our Nation's Heritage

AS our population expands, as our industrial output increases, and as rising productivity makes possible increased enjoyment of leisure time, the obligation to make the most efficient and beneficial use of our natural resources becomes correspondingly greater. The standard of living we enjoy—greater than any other nation in history—is attributable in large measure to the wide variety and rich abundance of this country's physical resources. But these resources are not inexhaustible—nor do they automatically replenish themselves.

We depend on our natural resources to sustain us—but in turn their continued availability must depend on our using them prudently, improving them wisely, and, where possible, restoring them promptly. We must reaffirm our dedication to the sound practices of conservation which can be defined as the wise use of our natural environment; it is, in the final analysis, the highest form of national thrift—the prevention of waste and despoilment while preserving, improving, and renewing the quality and usefulness of all our resources. Our deep spiritual confidence that this Nation will survive the perils of today—which may well be with us for decades to come—compels us to invest in our Nation's future, to consider and meet our obligations to our children and the numberless generations that will follow.

John F. Kennedy

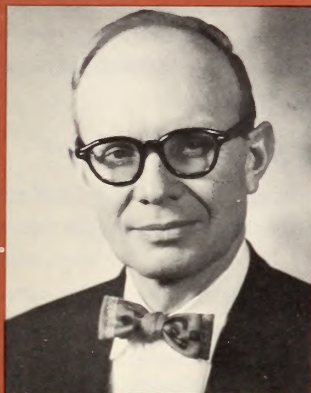
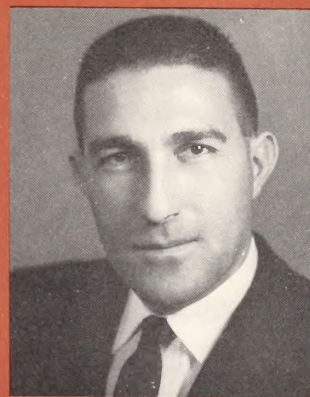
PRESIDENT OF THE UNITED STATES OF AMERICA

From the White House Message on Conservation

March 1, 1962

THE development of America's vast public domain is, in large part, the story of our westward moving frontier. These lands—once described as worthless and barren—now support productive farms, thriving towns, busy factories, and a prosperous people. The land has been good to us—much better, in fact, than we have been to the land. The opening of the West is now a page in history, but the land remains with its new challenge. On this 150th anniversary of our public land management system, both the wisdom and the errors of the past must guide us in the future. Through sound conservation and wise use, the land will continue to sustain and nourish us both materially and spiritually.

Stewart L. Udall
SECRETARY OF THE INTERIOR



WHEN the General Land Office was set up in business in 1812 the land was vast, the people few, less than five to each square mile. The main job of the fledgling office was land disposal, to get the public lands into the hands of the people, a job which it did with remarkable success over the intervening 150 years. Today there are 50 Americans for each square mile. Exclusive of Alaska, the public domain has shrunk to some 180 million acres. The primary role of the Bureau is now one of management, to the end that the Federal land reserve may make its maximum contribution of food and fiber, lumber and minerals, water and recreation, today and tomorrow.

John A. Carver, Jr.
ASSISTANT SECRETARY—PUBLIC LAND MANAGEMENT

THE Bureau of Land Management, acting under the supervision of the Secretary of the Interior, is guardian of the national land reserve. The Bureau faces the challenge of managing some 13 percent of the land area of the United States. Our guiding principle is to act in the public's interest as we devote our energies toward conserving and developing resources of soil, watersheds, forests, grasslands, wildlife habitat and outdoor recreation. The public lands belong to everyone, and it is our duty as Federal employees to administer the public land laws and regulations for the benefit of all the people.

Karl S. Landstrom
DIRECTOR, BUREAU OF LAND MANAGEMENT





The Role of Public Lands in America's History

by **Jerry A. O'Callaghan**
Assistant Director, Lands and Minerals

"There can be no permanent political liberty without economic freedom."

—*Senator Joseph C. O'Mahoney*

WE share two ingredients to a greater degree than any other people in the world today—political freedom, and economic freedom. Economic freedom, which has given vitality to our political liberty, is due largely to the American people transferring one billion acres of land from public to private ownership, and to managing half a billion acres remaining in public ownership in the public's interest.

These acres lie principally in the great continental heartland stretching from the Appalachian Mountains to the Rockies, the area drained by the Mississippi, and in scattered blocks west of the 100th meridian. These are the acres from which come the iron ores of the Mesabi, the lumber of the Great Lakes and the South, grass from the High Plains, cotton from the Old South, corn from the rich soil of Iowa, coal from the bituminous beds of the Ohio Valley, grain from the Great Plains, hay and potatoes from irrigated farms at the foot of the Rockies.

About 1760, when these were still the Crown Lands of Great Britain, advance guards of the American occupation fanned out from the great gaps in the Appalachian Mountains. Two centuries later the Mississippi Valley has already taken its place among great river valleys which have been the crucibles of civilization. The great catalyst in this development was the opportunity for people to procure land without feudal encumbrance.

Until the emergence of the United States as a world power early in this century, every great turning point in our national history has pivoted in some manner on the public lands. The very formation of the Con-

tinental Army led directly to the creation of a landed patrimony for all the people.

Land for Revolutionary Soldiers

When it became obvious to George Washington that the independence so lustily proclaimed by the American Colonies would have to be defended by regularly enrolled troops, he asked the Congress to create "Continental Line" of 88 battalions.

One inducement was the promise of a land grant to men who would enlist. The battalions were to be raised by the States, but Maryland balked at the measure—on the plea that it was a landless State and had no claim on Crown Lands needed to fulfill such a promise.

Maryland and the other landless States insisted that the Crown Lands be transferred to a central government, to be the patrimony of the entire people and not just the property of the seven colonies which had been beneficiaries of the generosity of the British monarchs. Negotiations continued until 1802, but the public domain resulted—roughly covering the eastern half of the Mississippi Valley.

Confederation Government

The early government has three accomplishments of public land administration to its credit. Two are often commented upon; a third is not often noted but is of utmost significance.

The Confederation Government adopted for public lands the rectilinear system of land surveys, rather than the system of metes and bounds. Thereby the

established a system of cadastral survey similar to the one still used today.

Use of public lands to support public purposes was embodied in the Land Ordinance of 1785. One section per township was granted to the Northwest Territory for the support of education. In providing a transitional government leading to statehood, this ordinance also set the far-reaching precedent that any area held by the United States would someday be embraced within a State, admitted to the Union upon terms of full equality with all other States.

A third decision of the Confederation Congress also deserves analysis. Unconsciously perhaps, the Congress decided to grant only *allodial* titles; that is, titles of absolute ownership not subject to any feudal duties or burdens.

It is difficult to conceive that America could have come to its place in the world today had the people been hampered by such vestiges of feudal land tenure as primogeniture, entailments and quit rents. Ample precedent was available for loading land titles with such encumbrances. Instead, without excitement or drama, possibly even routinely, they forestalled such inhibiting arrangements and provided free exchange of land from the day of the Continental soldier locating his land bounty to the day of the suburbanite who buys and sells houses with alacrity if not always with profit.

The weak Confederation Government was followed by the National Government in 1787. One great act of this young Republic was transforming the public debt from a drag on the Nation to the keystone of a system of public credit. At the very base of the system were the public lands, upon which financier Alexander Hamilton depended for one of the two main sources of revenue to retire the debt.

Hamilton's Policy

Hamilton's policy of selling the public lands for their revenue did not mesh with the needs of America, at least as those needs were defined by the restless frontiersmen who believed fervently that God meant land to be owned by those who occupied it.

Agitation for alteration of Hamilton's policy began immediately. The first breach was made by the Harrison land law of 1800, and ended in 1862 in an absolute reversal upon enactment of the Homestead Act.

Hamilton's policy did prevail, however, for some 60 years. Sectional balance was so fine that Western Congressmen at first could not get support from the Northeastern commercial and industrial representatives. Later the South withheld its support when implications for slavery were well understood.

Almost any debate in the second quarter of the Nineteenth Century became a debate on theories of government. Although the listening Senate never got around to voting on the matter, the great debate between Webster and Hayne was set off by a resolution for restriction on the sale of public lands.

In 1830, during the Webster-Hayne debate, the South was not wholly opposed to homesteading. By 1848, when the Mexican Cession and the Oregon Country had rounded out the Nation, southern defense of slavery had become a demand that slavery expand into the new territory.

The question was whether lands forming the public domain were to promote a freeholding society or whether areas were to be reserved for a society based on slaves. Stated in Senator O'Mahoney's dictum, the question was whether public lands were to furnish economic freedom as a buttress to political liberty—or whether this was to be blighted by the legal right to carry chattel slaves onto some of these lands.

In this context it is not necessary to pass judgment



upon the merits of the opposing interpretations. The interpretations were fatefully put to the test of battle in the Civil War. The view of the American Union espoused by Webster and relentlessly pursued by Lincoln prevailed on the battlefield and now prevails in the Constitution by virtue of the Fourteenth Amendment.

The generation after the Civil War turned its energies from warmaking into the creation of great cities, as transportation, commerce and industry increased in tempo. And under the stimulus of the Homestead Act and related acts, the agricultural settlement of the Great Plains and Inter-Mountain basins of the Far West began. By 1890 the frontier line no longer existed. This meant that the expansion could no longer be shown on a map by a single line depicting the outer edge of settlement.

Homesteading is invariably associated with the wagon trains of the Nineteenth Century, but the decade of greatest use, as measured by acreage patented, was the second decade of the Twentieth Century. That this anticlimatic drive to secure land was more enthusiastic than rational can be read in the statistics of the 1930's when millions of acres were bought back by the Government under the Bankhead-Jones Act.

The Taylor Act

After 1934 most homestead entry was foreclosed by enactment of the Taylor Act, which set forth the orderly conduct of grazing on the public lands. To call it the Taylor Grazing Act, however, obscures its place on the statute books as a general public land administration

act, equal in importance to any land act in the course of a nation's history.

Taken with two Executive orders withdrawing from further entry the remaining unoccupied vacant, unappropriated public lands outside the grazing districts created by the Taylor Act, it is a decisive public land act—further disposition is contingent upon a classification by the Secretary of the Interior that the lands “are more valuable or suitable for the production of agricultural crops . . . or more valuable and suitable for any other use than (grazing). . . .”

As proof this was not a hasty action, it should be recited that the first recommendation for authority to classify the public lands was made by the Public Lands Commission in its report to Congress in 1884.

The 170 million acres in 11 Western States embraced by the Taylor Act were the “remnants” of the public domain, located in many scattered blocks between the Continental Divide and the Pacific Ocean.

Intermingled with the “remnants” are the blocks of privately owned land. This land varies in extent from Nevada's 13.6 percent to Washington's 70.4 percent.

The public lands set aside by the Taylor Act to form the national land reserve, combined with the virgin expanses of Alaska and certain other lands, are the residuum of the patrimony created by the cession of the former Crown Lands.

These are the lands for which there were no take under the numerous land disposition laws, or defied those who tried to reduce them to cultivation and the lands which prompted the refrain “Way out West in the country, starving to death on my Government claim.”

The origin of the term “Land Office business” is clearly shown in this 1907 photograph of applicants lined up outside the Land Office in Lakeview, Oregon. Scenes

such as this were common whenever additional lands were open to entry near areas already settled. This line had been forming for three weeks prior to filing time.



Retention in Public Ownership

Concurrent with the Homestead Act and other land disposition programs—often enthusiastically promoted by western railroads—other millions of acres were being permanently placed beyond the reach of land seekers.

In 1872 the fabulous scenery of western Wyoming and adjacent strips of Montana and Idaho were reserved as Yellowstone National Park “. . . and dedicated and set apart as a public park . . . for the benefit and enjoyment of the people. . . .”

This act was followed by other national park acts, and in 1891 authority was granted by Congress to set beyond the reach of the public land laws timbered lands which eventually became the national forests. These, together with withdrawals later authorized by Congress and made by the President on his own authority, constituted a new public policy—retention of land in public ownership where presence of public values justifies it.

The two public land policies—disposition and retention—have existed side by side for 70 years. In recent years there has been far less emphasis on disposition, and far more on retention.

Although climate, topography and tenure patterns underscore the need for retention of the reserved lands, retention of great portions of the remaining public lands rests athwart the landowning instincts of people whose desires to possess land have been honed by the very success of the American people in making available to themselves one billion acres of a continental domain for development in a free society.

The Growth of Our Nation

THE original public lands, as conveyed by the treaty of Paris in 1783, consisted of 541,364,480 acres (including 14,794,240 acres of water area). Of this original land area, 236,825,600 acres (including 3,409,920 acres of water area) were ceded by the individual States.

Major acquisitions were the Louisiana Purchase of 1803, which added 529,911,680 acres (including 6,465,280 acres of water area); the Florida Purchase of 1819, adding 46,144,640 acres (2,801,920 acres of water area); the Oregon Annexation of 1846 for 183,386,240 acres (including 2,741,760 of water area); and the Mexican Cession of 1848, 338,680,960 acres, including 4,201,600 acres of water area.

The annexation of Texas in 1845 did not add any acreage to the public lands, since the State of Texas retained the public lands of the former Republic of Texas. The United States did purchase from Texas lands outside the present borders of the State, adding 78,926,720 acres (including 83,840 acres of water area) to the public lands.

The Gadsden Purchase of 1853 added another 18,988,800 acres (including 26,880 acres of water area), and the final significant acquisition was Alaska in 1867, which added 375,296,000 acres, including 9,814,000 acres of water area.

Equal Opportunity

Our public land laws, when taken with judicial decisions and departmental decisions, are complicated, cumbersome, and at this writing completely out of date. They were enacted to meet the dynamics of expansion, at a time when agricultural development was considered the highest use.

America, now seven decades into the Twentieth Century, is an industrial and urban nation. Those lands remaining in public ownership must either be transferred or retained under laws which are responsive to today's needs. Even in the outmoded laws there glimmers, nevertheless, a great American principle: “Equality of opportunity for all, special privilege for none.” These laws provide economic freedom to insure political liberty. It is doubtless true today, as in the past, that not all who are legally eligible can take advantage of the opportunities presented by the public land laws.

There are, for instance, many independent oil and mining operators using public lands, but large development is in the hands of large corporations commanding resources and organizations to cope with the huge risks involved. The important point is that facts, not law, grant this advantage.

“Imitation is the sincerest form of flattery,” we recognize as one of the truisms of the race. And if this be so, the United States has received as much flattery as any modern nation. Our Constitution has been adapted by many countries. The fruition of this, however, has never sustained the high hopes envisioned.

Could the difference be that America's national patrimony has been employed to secure our political liberty by providing at least a modicum of economic freedom, while other nations have either possessed no such patrimony or have been unable or unwilling to use it to secure economic freedom?

In this year, replete with its many public land anniversaries, Americans are competing to attract the emerging nations of Africa and Asia. We are also increasing our efforts to keep in our orbit the nations to the south in our own hemisphere. We hope that the people of these nations will adapt the lessons learned by the American people in giving self-government a continental dimension. In that connection, both we and they should be ever mindful of the relationship of land to Senator O'Mahoney's observation: “There can be no permanent political liberty without economic freedom.”



ALASKA - the Last Frontier

ALASKA remains the last frontier for the pioneering spirit that pushed earlier frontiers westward to the Pacific. The new State of Alaska, rich in mineral and forest resources, and with millions of acres of untamed lands, today captures the imagination of thousands of adventurers seeking new challenge.

One of the attractions of Alaska is the vast acreage of lands still open to farm homesteading. Yet, because of the lack of roads, a small population, the weather, costs, and other factors, the problems involved in establishing a farm in Alaska must be faced realistically.

Alaska's future as an agricultural State can be brought about only by determined and ingenious farmers—with large amounts of capital for clearing land, constructing buildings, and equipping farms.

Untapped reserves of oil, gas, and other minerals, and the vast forests that cover much of the land, hold a bright future for the economic development of our last frontier.



Snowy peaks tower above Turnagain Arm below Anchorage, where Cook Inlet probes inland from the Gulf of Alaska. This scene is along the Anchorage-Seward section of the Department of the Interior's Alaska Railroad, a vital transportation link from the seaports of the south to Fairbanks.



Prosperous farms such as this one in the Matanuska Valley are uncommon in Alaska, where only about 22,000 acres of the entire State are in commercial croplands.

The Department of the Interior, through the Bureau of Land Management, is responsible for some 85 percent of the public lands in Alaska. When the new State of Alaska was established in 1959, more than 103 million acres were granted, and the State was allowed to make its selection of these lands over a 25-year period. While the growing State is developing her own resources the Bureau continues to handle fire protection on vast areas, and is administering the sale of oil and gas leases—which last year returned over \$3.5 million to the State's own treasury.

The dramatic photograph below, made during a reindeer roundup on the Alaska Peninsula, shows some of the animals descended from herds imported in the 1890's.



Magnificent mountain valleys filled with glaciers that tumble toward the sea border the coast of Alaska in the St. Elias Range north of the capital city, Juneau.



Much of Alaska's interior is almost impenetrable wilderness, with meandering streams and bogs that make construction of roads and highways extremely difficult.





A dread crown fire sweeps through a mountain forest, leaving destroyed trees and watershed in its wake.

Protecting Our Public Lands

by **Jesse M. Honeywell**
Chief, Division of Protection

THE weary crew dropped their battered tools beside the pickup truck and slowly filed past the water-filled Lister bag. Each paused for a moment to wash the sooty grime from his face and hands before filling his tray with the first hot meal in two days.

Too tired for conversation, the smoke-blackened men were quiet as they settled on the ground within the circle of light cast by a hissing gasoline lantern.

After the meal, cigarettes were lit and the talk began. Mixed with English were the soft dialects of Zuni Indians from Arizona, the Blackfeet of Montana, the Apaches of New Mexico.

Across the valley, through the pall of black smoke, the exhausted firefighters could see the flare of the advancing flames as they crackled through the brush. Nearer, and moving away from them, was the backfire which had been started after they had laboriously hacked a clear fire lane through the undergrowth.

Suddenly the blaze towered high as the main fire and the back fire met, and then died. All that remained were a few stumps still blazing in the night.

By morning the fire crew had cleaned their gear, had broken camp, and were on their way toward the local dispatcher's office to await another assignment. At the main fire camp, only the mopup crew remained. Permanent Bureau of Land Management employees were already surveying the damage, making plans for rehabilitating the burned area, and investigating the cause.

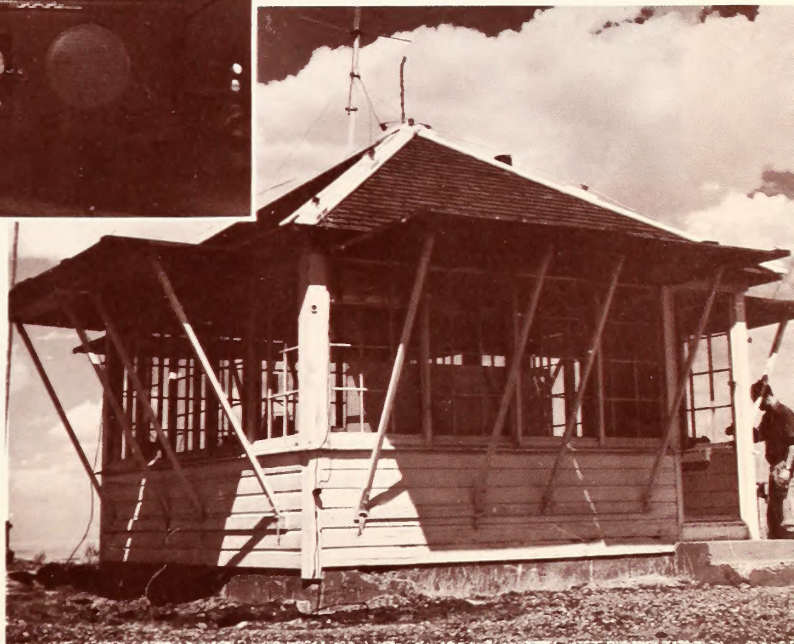
Scenes such as this occur many times each year on the lands managed by the Department of the Interior's Bureau of Land Management. The fire camp might be on a forested slope in Montana, beside a sagebrush range in New Mexico, or deep within the vast interior of Alaska. Wherever the fire, BLM employees will be on hand, fighting to contain the fire with the least possible damage to our public land resources.

A fire on BLM range or forest land may begin with a carelessly tossed cigarette, a bolt of lightning, an unattended campfire, or it may be the work of a firebug. Although the beginning of a fire might be measured with stopwatch precision, and the last wisp of smoke clocked within hours or even weeks later, the damage wrought by the fire may last for years.

Rangeland, scorched clean of protective vegetation, forests, blackened and charred, may take years to recover. But fire, the most spectacular of the hazards faced by BLM lands, is only one aspect of the task that must be met in protecting our public lands.



Lookout towers and radio-dispatched fire crews are used to detect range and forest fires on many BLM lands. Modern techniques and equipment have gone far in cutting the toll of destruction, and the Bureau's Protection Division is constantly seeking new methods of halting fires even quicker.



A Variety of Problems

BLM's protection problems range from uncontrolled fires to insects, pests and diseases, to ravages of weather and encroachment of unauthorized users.

To meet the problems, BLM must conduct a program involving constant vigilance, preparation and training. The Bureau's thinly scattered field force must be supplemented with emergency fire crews, such as the Indians who travel from fire to fire during the summer months when danger is highest.

Wherever possible the Bureau cooperates with other agencies to provide maximum protection. Of the 402 million acres protected by BLM, approximately 5.5 million acres are protected from fire through contracts with other Federal and State fire control organizations.

Only about 1 percent of BLM's lands are protected by other agencies through agreements, however. The remaining 99 percent is protected directly by the Bureau's own personnel and equipment. In addition, by contract the Bureau temporarily continues to protect lands in Alaska selected under the Statehood Act.

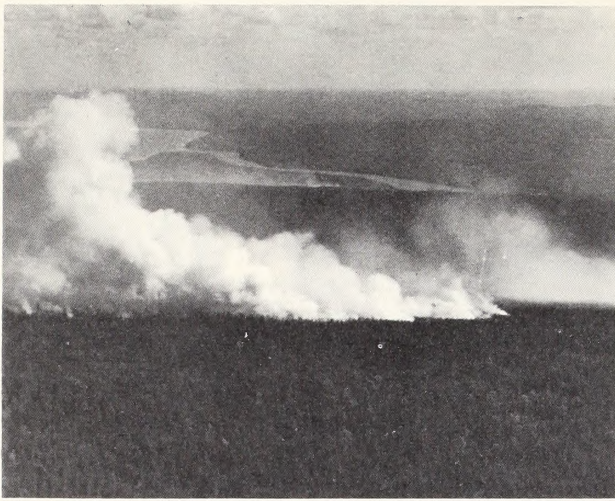
A Three-Pronged Attack on Fire

The Bureau meets its fire control problem with a three-pronged attack—prevention, presuppression, and suppression. And BLM uses the latest methods for each phase of the control problem.

Prevention involves an effort to reduce physical fire hazards such as downed timber and logging debris, and suitable places for campfires to reduce the danger from campers and picnickers.

Public education has positive benefits. While the total number of fires on BLM lands has remained fairly constant over the past 19 years, man-caused fires have steadily declined.

Presuppression includes the planning, organization, and training of permanent personnel to fight fires with confidence and safety. Fire guards are assigned to specific areas before the fire season begins. Equipment and supplies are kept ready. To aid in fire prevention and to alert the public of fire danger, information is supplied to press, radio, and television when the likelihood of fire is apparent.



The Bureau's biggest fire problems remain in the new State of Alaska, where uncontrolled fires can burn for long periods in the vast and unpopulated forested areas.

Suppression requires immediate action, regardless of the size of the fire, topography or vegetation. Over the large areas where the cost of lookout towers would be prohibitive, BLM uses airplanes to locate fires. The scope of the problem of finding fires in Alaska is emphasized by the fact that in past years holocausts have engulfed a million acres in a single fire before it was discovered.

BLM fire suppression crews take to the air to put out fires, as well as to find them. Smokejumpers are used in several areas, and chemical retardants dropped from the air have proven effective in controlling small fires and in aiding firefighters at critical points on larger fires.

Although fire is the spectacular destroyer of the resources, it is not the greatest killer. The silent attack

of insects and pests of the range and forest take a much greater toll. Working through State Directors and cooperating agencies, agreements for the detection and suppression of these destroyers provide expert technical assistance, and a share of Federal funds appropriated for control.

Unauthorized Users of Public Lands

BLM's protection problems include people and livestock as well as fire and natural hazards. During the growth of the General Land Office and later the Bureau of Land Management, adequate personnel lagged far behind proper management goals. Inadequate control of the lands and resources resulted—so that today, we find a chronic problem of unauthorized use in the forms of timber, agriculture, occupancy, grazing, and mineral trespass, including some fraudulent uses.

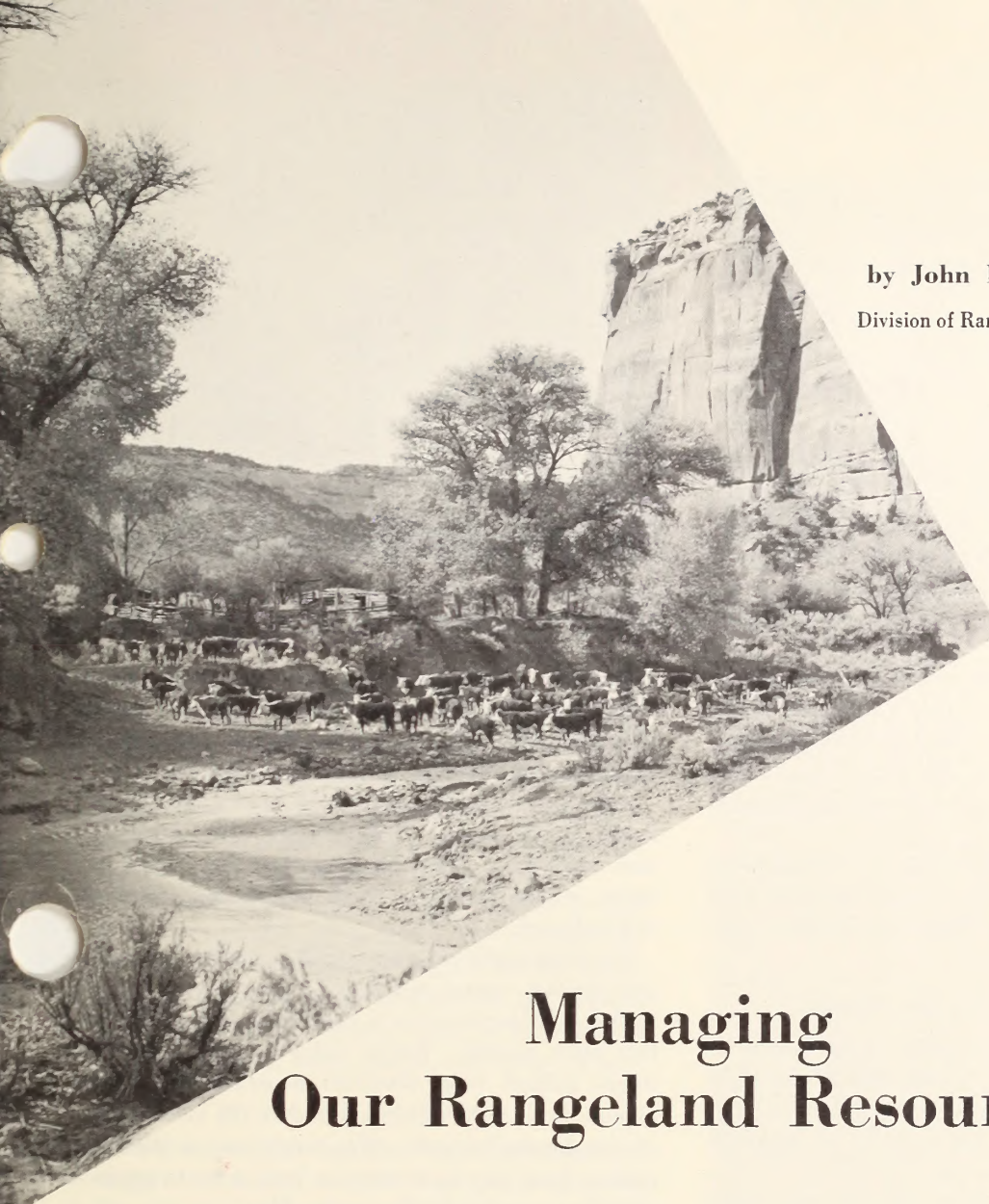
It is estimated that there is a backlog of some 17,000 cases of unlawful use, representing a resource value of \$16 million. Although approximately 75 percent of unauthorized use is unintentional, the illegal use and taking of resources is a detriment to effective management. These problems have generated criticism from other users, and by organizations interested in the multiple use of the lands.

Facing Toward the Future

The Bureau's protection program is a veritable youngster, but is growing. It is imperative that the lands and resources of the Nation be preserved for the generations to follow. With this in mind, the Bureau is taking vigorous steps to see that this heritage is not destroyed and that it is put to the best possible use.

BLM employees load a converted bomber with chemical slurry for aerial bombing of a forest fire in Alaska.





by John R. Killough

Division of Range Management

Managing Our Rangeland Resources

KEEPER of the world's biggest pastures—that's the Bureau of Land Management. With some 160 million acres in 58 organized grazing districts in 11 Western States, and another 16.5 million acres scattered outside the districts, BLM lands provide forage for approximately 6 percent of the Nation's beef cattle and 23 percent of the sheep.

Once the public lands blanketed the major part of the United States. At one time or another some 1.8 billion acres have been considered public domain. In the last century, as America moved westward and into Alaska, this area has dwindled into a relatively small remnant of its former expanse—but the remaining area in the national land reserve is still larger than 13 of the Eastern States combined.

This is the "Federal range," home of the storied cowboy of the Old West, and still a gigantic resource producing forage for livestock and wildlife.

Management, Protection, and Development

The Bureau of Land Management is responsible for the management, protection and development of the soil, vegetation and water resources of the national land reserve. The Taylor Grazing Act of 1934 provides the authority for most of the Bureau's programs in carrying out these responsibilities.

Under this act regulations have been developed to assure wise management of grazing, prevention of soil and water losses from erosion, and development of the highest potential production under sustained use.



A range manager studies an arid valley in Wyoming. He must be familiar with many factors affecting the range.



Soil tests give some of the clues needed for sound recommendations for new range conservation practices.

Much of the grazing on the national land reserve is seasonal in character, supplying only a small percentage of the total feed supply for the Nation's livestock industry. But without the use of this forage, year-round livestock production would be seriously handicapped in many local areas.

In addition to domestic livestock, an estimated 1.2 million big game animals find a large share of their livelihood on public lands. These include deer, antelope, elk and moose.

Wise Regulation of the Range

Wise regulation and management of the range requires that surveys be made to map and evaluate the vegetation cover, available water, topography and other physical features limiting the number of livestock and big game which can utilize the range.

Surveys must also be made to determine the capability of private lands to support livestock during the period they are not on the national land reserve. Involved are the private lands of some 18,000 operators who are licensed to graze 8.5 million head of livestock in the grazing districts.

Continued range use supervision assures compliance with the terms of grazing licenses issued, prevents grazing trespass, and provides conformance with the established range management programs. Continuous studies help determine the condition of the range and assure effectiveness of range use practices and livestock use adjustments.

Water Shortage a Chronic Problem

BLM lands are in that portion of the Western States where water shortage is a chronic problem and natural

vegetation is sparse and delicately adapted to special conditions. Serious conservation problems, created by uncontrolled use and neglect during past decades, exist in a tragically high proportion of the area.

Deterioration of the plant cover has caused not only a reduction in forage production but also critical erosion conditions. These in turn cause loss of soil and water, stream pollution, floods and damage from silt and sediment.

Land treatment practices—such as pitting, furrowing and ripping—retard runoff and also condition the soil so that sufficient moisture is absorbed and kept to maintain plant growth. Where valley bottoms have been deeply gullied, large detention structures are needed to slow down flood waters and reduce the cutting force of concentrated runoff. Water captured in these detention dams may be diverted to level areas to produce abundant growth behind spreader dikes.

Grazing Management

Proper grazing management is a conservation measure, essential in curbing vegetative deterioration and halting erosion. In some cases it may be the only practice needed. In most areas, however, the remnant of native grasses is insufficient to rejuvenate the stand in a reasonable period of time.

In these areas of extremely poor range, the remaining surface soils are incapable of absorbing and holding what little precipitation does fall in the form of rain and snow. It is questionable if some of the more critical lands would improve under any system of management without application of special practices to hold the soil and establish a vegetative cover.

Some of the conservation practices that can be used



This aerial view of a water-spreading system shows how runoff of infrequent but violent rainfall can be retained.

to treat and restore rangelands are seeding of grasses, and brush control by burning, chemical and mechanical methods. These practices result in rapid establishment of valuable forage species—which in turn retard or prevent the invasion of undesirable weeds and brush. In addition, these plants form a soil-binding cover that resists erosion and holds back excessive runoff.

Water for livestock requires many facilities in arid lands, including wells, ponds, and spring developments. Fences must be constructed to control the movement of livestock, to protect newly seeded areas and to assist in livestock handling. Access must be provided by truck trails, bridges, cattle guards and stock trails.

Projects for the Future

There are over 43,000 projects for the management of range and livestock and for conservation purposes on the national land reserve. These projects include 22,000 miles of fence, 1.5 million acres of brush control, 2.5 million acres of grass seedings, 1,300 water detention structures, and 11,000 stock water ponds.

Fire is a serious problem, requiring the time and effort of BLM range men throughout the summer months. Fires caused by careless smokers, lightning and other causes burn an average of 264,000 acres each year.

The Bureau makes every effort to prevent and control fires, for once the range is burned the protective cover of valuable grasses is slow to recover. Soil is exposed to erosion and the land's value as a watershed is seriously impaired. When fires cannot be prevented, rehabilitation measures are carried out immediately following the fire to restore the watershed and to prevent soil loss or invasion of undesirable vegetation.

THE TAYLOR GRAZING ACT

ON June 28, 1934, President Franklin D. Roosevelt signed into law the Taylor Grazing Act. With a few strokes of a pen he ended more than half a century of indecision over the proper disposition of 173 million acres of grazing lands in the Western States.

Congressman Edward T. Taylor of Colorado, Representative since 1909 and active in the passage of the Grazing Homestead Act in 1916, was the author of the law. His bill was a revision of the Colton bill, which failed to pass the Senate in the previous Congress.

The Taylor Act passed the House on April 11, 1934, and the Senate on June 12. While the legislation was awaiting Senate action, one of the most powerful arguments for its passage went almost unnoticed. Some of the worst dust storms in the Nation's history came that spring, and on May 11 sands from the western deserts sifted down around the dome of the Capitol in Washington. "The most tragic, the most impressive lobbyists, that have ever come to this Capitol," was the later description by Senator Gore of Oklahoma.

The Taylor Act was followed by two Executive orders that withdrew for classification all the public lands in the Western States. The only vacant, unreserved, and unappropriated public lands remaining are in Alaska, where the provisions of the Taylor Act still do not apply.

In September 1934 the Division of Grazing was established in the Department of the Interior. With no appropriation for administering the act, the original staff was assembled with people on loan from other agencies. There were no maps of the public domain, and the only people who knew where the grazing lands were located were the stockmen who used them. Thus, with borrowed personnel and no funds, the Division of Grazing set out to administer the act.

In August 1939 the Division of Grazing became the Grazing Service. A year later the Grazing Service headquarters was moved from Washington to Salt Lake City. In 1946 the Grazing Service was consolidated with the General Land Office to form the Bureau of Land Management.

The original act provided for cooperation with local stockmen. F. R. Carpenter, first director of the Division of Grazing, created a system of stockmen advisory boards. By 1939 their importance was given legal recognition and permanent status, and in 1940 the National Advisory Council was created. In 1949 State advisory boards were added and the name of the national group was changed to the National Advisory Board Council.

In 1962 the National Advisory Council was enlarged to include representation from other important interests on the land, such as forestry, minerals, outdoor recreation, urban and suburban development, and local governments, as well as livestock and wildlife.

Federal rangelands are potentially a great national asset. Wise management, for the production of forage, protection of watershed, and prevention of erosion, is one of the Bureau's most challenging responsibilities. Through skillful application of existing management techniques, and through research leading to new and improved practices, BLM is striving to meet the challenge.

Resources of Our Public Lands

THE Bureau of Land Management is one of the few Federal Government agencies that returns to the Treasury of the United States far more funds than are appropriated. Since 1812, in fact, the Bureau and its predecessors have received well over \$2 billion from the sale of the resources of our public lands.

More than half of the total, \$1.7 billion, has come since 1946 when the Bureau of Land Management was established. For the last fiscal year, gross receipts from the sale and management of public lands and resources totaled \$159,246,157.

Where do these monies come from? Last year mineral leases and permits returned \$116,981,971, including \$7,304,687 from rents and royalties on the Outer Continental Shelf. Next in dollar value was the sale of timber, bringing \$32,125,757. Public land sales brought \$4,500,000, while the revenue from grazing leases, licenses, and permits totaled \$2,982,188. Fees and commissions brought \$2,476,549; rights-of-way, \$209,724; and other sources brought \$219,968.

Of the Bureau's receipts for fiscal year 1961, \$51,935,891 was returned to 27 public land States, including \$14,454,673 which went to the 18 western Oregon timber land counties.

The Reclamation Fund received \$52,261,699, and \$51,500,444 went to the General Fund of the Treasury. Also \$3,233,499 was transferred to other Government agencies; \$314,624 earmarked for Indian trust funds; and approximately \$739,842 returned to the grazing districts for range improvements.

In the early years of the General Land Office the sale of Government land was considered a primary source of revenue for the young Nation. Today, the sale and lease of the resources of the land loom far more important than does the sale of land itself—clear demonstration of the changing values of our public lands.







Surveying Our Public Lands

by **Charles E. Remington**
Chief, Division of Engineering



FLY across the heartland of the United States today and you will see below a vast checkerboard, with fields and roads and cities laid out in a precise north-south, east-west arrangement. Practically the only features that don't run by the compass are the ridges and valleys and streams.

A map depicting our country as it was at the end of the Revolutionary War would show vast expanses of land occupied by various Indian tribes but owned by various nations of the world. During the half century beginning in 1803, some two-thirds of the present United States, except for Alaska, was acquired by purchase, cession, or annexation.

At the close of the Revolutionary War, plans were already being made for the orderly expansion of the new nation. Farsighted Thomas Jefferson conceived the idea of dividing the vast wilderness to the west into the present township and section plan so striking to the air traveler of today.

It is rumored that George Washington, himself a surveyor, objected to Jefferson's plan, but nevertheless Congress approved it on May 20, 1785. Today we are the one nation in the world with a land pattern based on a system of surveys making available to the people a precise, easily described method of choosing their desired share of the land surface.

Essentially the same system is used today in Alaska to mark the boundaries of our last frontier. One of the most significant features of the system is that land boundaries can be established before settlers arrive. As we watch the struggles of other countries in carrying out land reform programs, we realize how fortunate we are to have inherited a system that made suitable parcels of land available to pioneer families.

Cadastral Surveying

The term *cadastral surveying* means a system of government surveys of large areas, with baselines providing reference points from which private surveyors can make subdivisions and accurate descriptions.

In each State a baseline has been established, and this baseline runs east and west. A principal meridian, running north and south, provides the other reference line. Townships 6 miles square, containing 36 sections of a square mile each, are marked off from the baseline and the meridian.

Modern cadastral engineers are using electronic distance measuring equipment to establish control points for their work—increasing accuracy and saving man-hours.

Sections are numbered, and can be systematically subdivided into quarters and smaller rectangles according to an established pattern. Thus the same sort of descriptions can be used and understood throughout the rectangular survey states, whether the lands involved are half-township blocks in Alaska or residential tracts of $1\frac{1}{4}$ acres in California, or even cemetery lots in Arizona.

The Job Goes On

Even today much of the early land acquisitions remain unsurveyed. High mountain slopes and remote and inaccessible wilderness areas in some of the Western States are just now being surveyed for the first time. In Alaska, only a small fraction of the total land area has been surveyed, but the job goes on as rapidly as funds and the real handicap of a short working season permit.

Helicopters are used today to transport men and equipment across rugged canyons and almost impenetrable forests. All that is needed is a small clearing for the

Surveying equipment and methods have changed immensely since the first crude and inaccurate surveys of public lands in 1786.

Survey parties once lived off the land, traveling by foot, horseback, wagon, and canoe to reach the lands beyond the frontier of civilization. Colorful accounts of the travels of these early explorers still exist as footnotes to the field surveys recorded in the Bureau of Land Management's files, recounting tales of quiet heroism as lonely parties worked their way across prairies and deserts, snow-covered mountains and alkali flats.

Once the surveyor's task was a dawn-to-dusk affair, with little comfort in his meager supplies of salt, salt pork, beans and a barrel of whiskey. Hazards included hostile Indians, extremes of heat and cold, and unpredictable supplies of food and water. The Government land surveyor of a century ago was a true

helicopter to land. However, the surveyors still must descend into valleys to place the monuments that mark their corners.





pioneer of the Old West, and many an unmarked grave holds mute testimony to the challenge of his work.

Today the cadastral engineer faces different problems, and he meets the challenges of his job with the most modern equipment available. Leapfrogging from point to point by helicopter, he crosses valleys and peaks in minutes where earlier surveyors would have struggled for days. Instead of laboriously measuring vast distances with handheld chains, he can use the most modern electronic ranging devices to read distances. Aerial photographs and theodolites make his work easier and more accurate.

Much of the modern cadastral surveyor's work involves relocation of lost or obliterated corners. Old corners were marked with wooden poles in many cases, and the ravages of time have caused many to be lost. Today the Bureau uses metal markers, and is experimenting with radioactive tracers for easier location.

The Bureau's land records tell the story of the westward expansion of our Nation. But more than just a historical record, these documents are used every day in the Bureau's land offices and in Washington, D.C. Dating back to 1800, the records include some 6,000 volumes of survey notes and 135,000 township plats.

This lonely surveyor's camp was used by a party of BLM surveyors who marked the outer boundaries of Mount McKinley National Park—and had to conduct their survey in mid-winter because the swamps could not be crossed after the thaws. The survey was made in 1936.

The records provide the only official basic survey and plat record upon which all original patents were granted by the United States, and are the basic records for all later public and private property transactions in most of the States.

In 1785 on the banks of the Ohio River in what was then the Northwest Territory, a surveyor named Asolem Martin peered through the peepsites of his primitive alidade as he began the Nation's first public land survey. In 1962 on a lonely peak in southeastern Utah, another surveyor peered at the dials on a radar-like instrument and spoke into a microphone. Separated by 176 years of population expansion and technological progress, they were both devoted to a common task—surveying our public lands.

A survey party in Wyoming pauses along the trail. This crew was employed by the General Land Office in 1920.





What is the **National Land Reserve?**

FOR many years people in and out of the Government have searched for a term that accurately describes the category of lands managed by the Department of the Interior's Bureau of Land Management. Historically, these lands have been called the "vacant, unappropriated, and unreserved public domain." But that phrase is both unwieldy and technically inaccurate. The only lands still fitting that definition are the lands managed by BLM in Alaska. The old classic settlement laws still apply in that State.

But the lands managed by BLM in the Western States were reserved by the Taylor Grazing Act of 1934 and by two Executive orders signed by the President in 1934 and 1935. The lands managed by BLM were

closed by those orders to most forms of automatic private acquisition. The lands remained open to the staking of mining claims and for public fishing, hunting, camping, and other outdoor recreation, and reopening to settlement is possible where conditions permit.

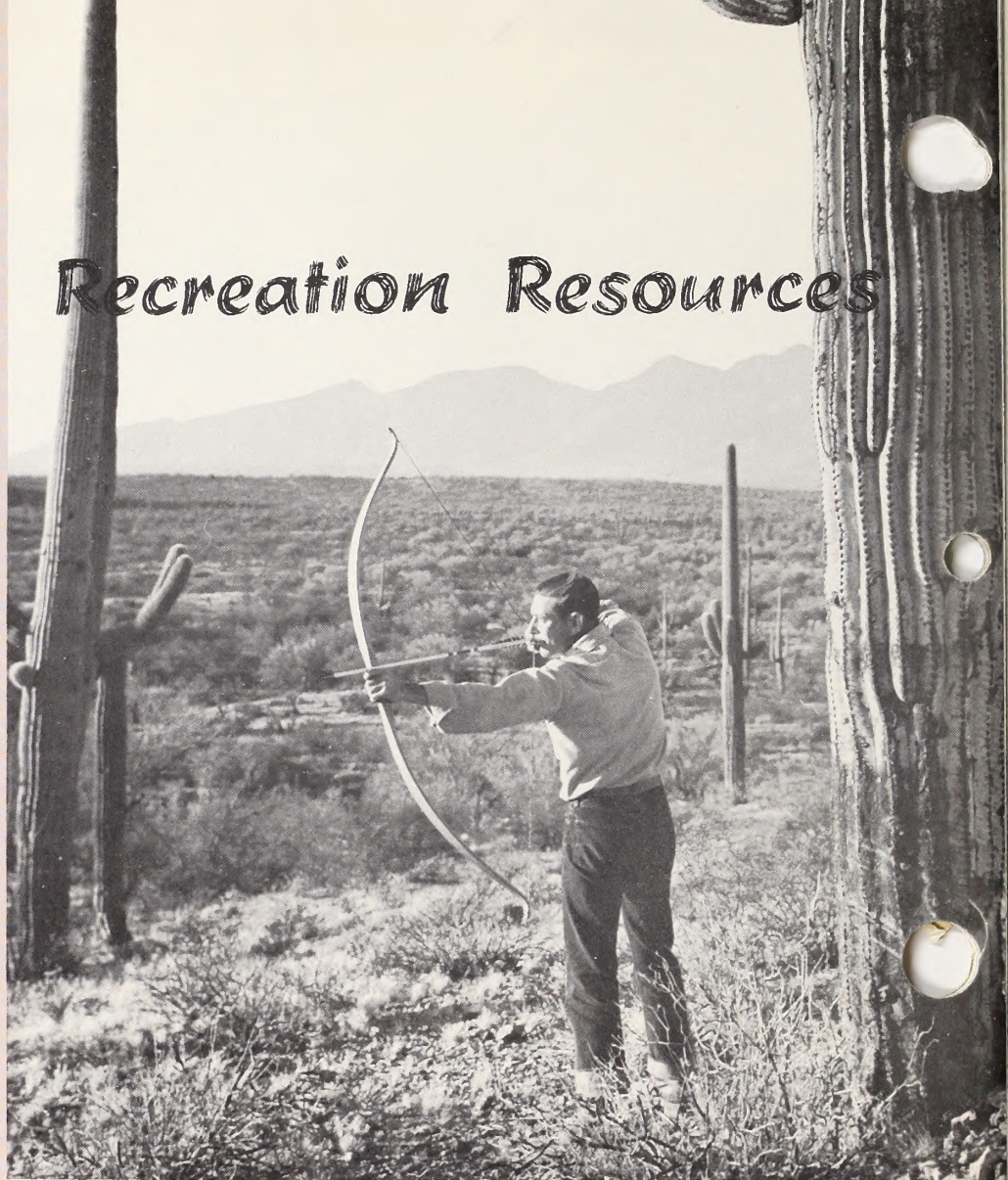
Furthermore, BLM lands are far from "vacant." They are occupied by very valuable resources—forage, timber, minerals, livestock, wildlife, and sometimes by people and buildings. The word "vacant" clearly doesn't describe BLM lands.

Last year President Kennedy referred to these lands as a "vital national 'reserve' that should be devoted to productive use now and maintained for future generations." That definition surely fits these valuable lands and resources which for more than 150 years have been furnishing materials and space for the growing Nation.

So today the national land reserve means all the lands administered by the Bureau of Land Management for all the people, except the remaining unreserved public domain in Alaska. Those lands are still "unreserved and unappropriated." The national land reserve is located chiefly in 11 Western States, with small acreages scattered in the Midwest and Southeast.

Outdoor Recreation Resources

Space for outdoor recreation is one of America's fastest growing needs. This archer, hunting with bow and arrow in Arizona, typifies the ardent outdoor enthusiast who travels many miles for his recreation.

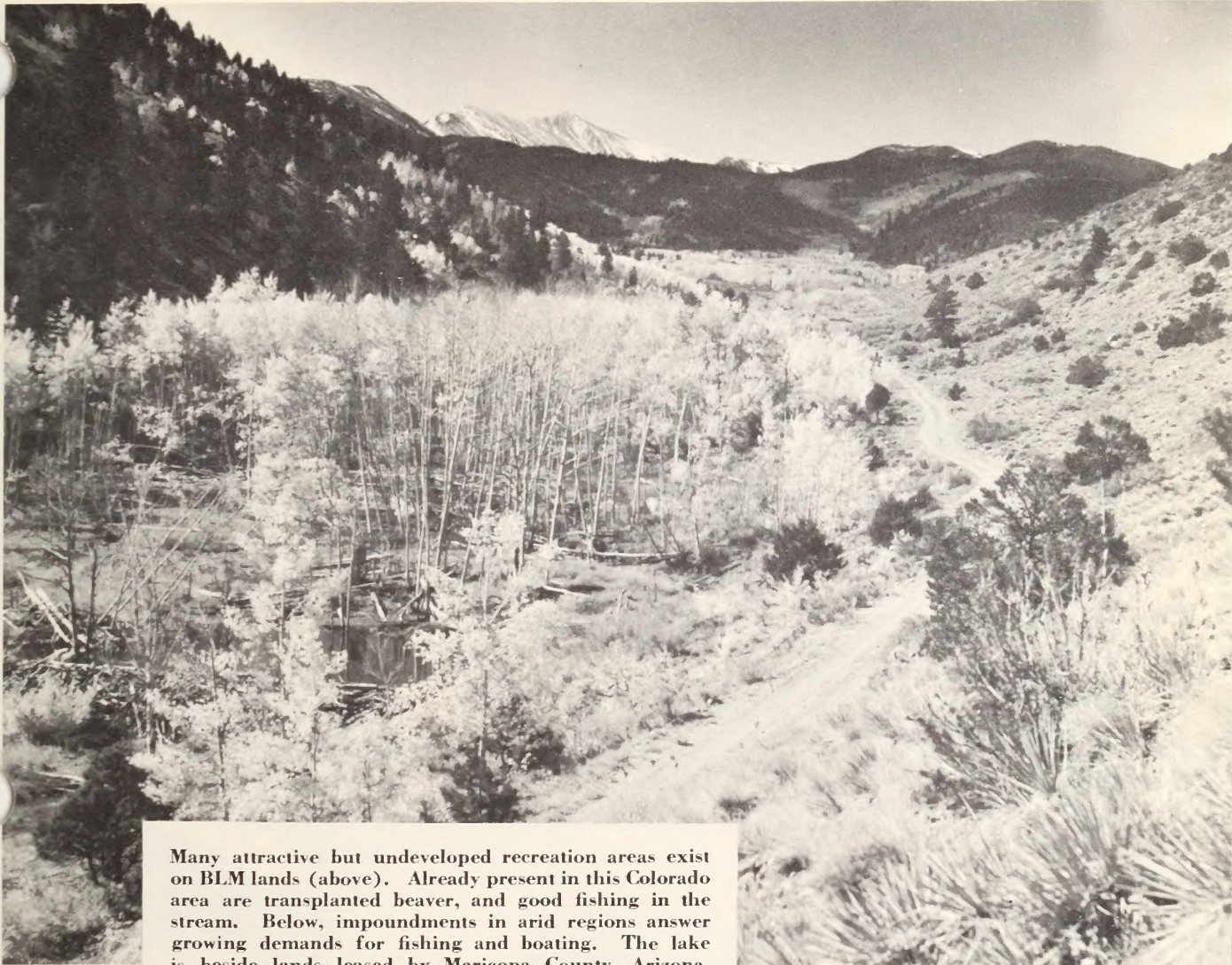


OUTDOOR recreation on the national land reserve holds bright promise for millions of Americans who seek enrichment and relaxation away from city streets and crowded resorts. The recreation resources of our public lands include a wealth of opportunity for both young and old—whether you seek a quiet spot for family picnics, challenging mountains to climb, or hunting and fishing, or simply the enjoyment of the plants and animals and geology of a scenic area.

The recreation resources of vast areas of the national land reserve remain undeveloped, except by those who use the areas themselves. On the revested Oregon and California Railroad lands in Western Oregon, where special funds are available, family picnic sites and campgrounds are being developed for the enjoyment of tourists attracted to the area.

Many areas hold particular value to local communities, whose need for parks, campsites, and picnic facilities can best be answered by lands administered by the Bureau of Land Management. And these lands are available for sale or lease to local governments, at a low price.

Under the Recreation and Public Purposes Act of 1926, with later amendments, the Bureau can sell lands to local governments for \$2.50 an acre, or lease them for 25 cents a year. To qualify, the State, county, or municipal government must present a proposal for the development of the area, explaining how the land will be used and what local effort is planned to make the area of more benefit to the public. Many are taking advantage of this opportunity to make more recreational facilities available to their citizens.



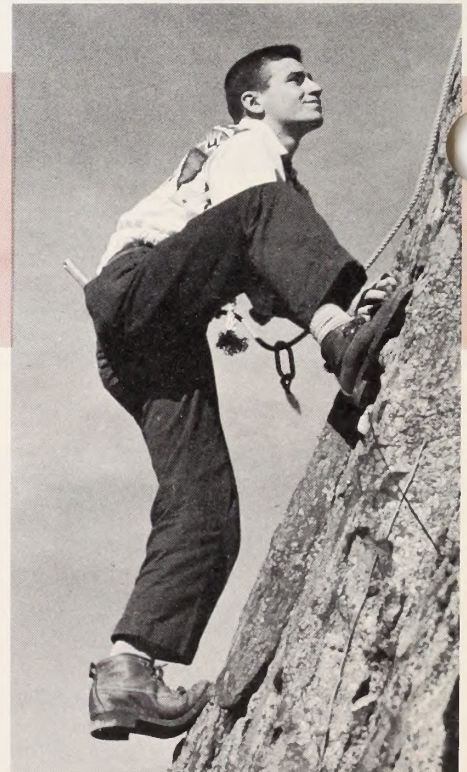
Many attractive but undeveloped recreation areas exist on BLM lands (above). Already present in this Colorado area are transplanted beaver, and good fishing in the stream. Below, impoundments in arid regions answer growing demands for fishing and boating. The lake is beside lands leased by Maricopa County, Arizona.



Outdoor Recreation Resources



Pronghorn antelope are among the most valued wildlife species found on the national land reserve. Providing not only hunting, the antelope's presence is a tourist attraction.

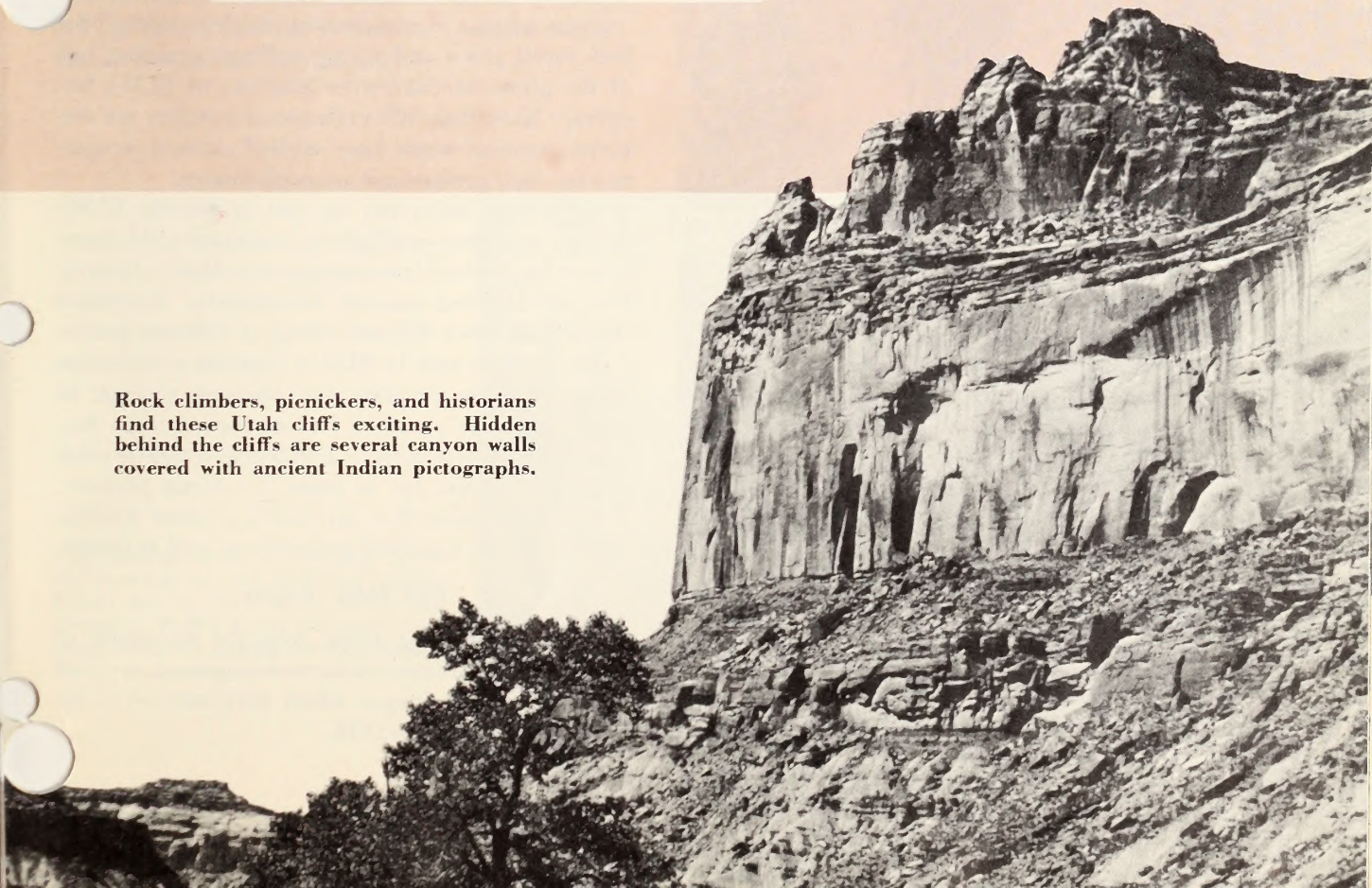


Outdoor recreation facilities must fill the needs of many types of sportsmen, from the serene trout fisherman to the rugged young mountaineer. Varied resources of BLM lands give them an important role in outdoor recreation planning for the future.



Lands such as this virgin pine forest in Nevada can provide recreational outlets for thousands, while still producing other important products.

Rock climbers, picnickers, and historians find these Utah cliffs exciting. Hidden behind the cliffs are several canyon walls covered with ancient Indian pictographs.





Managing Our

by Eugene V. Zumwalt

Chief, Division of Forest Management

A hundred or a hundred and fifty years actually isn't a very long time in the life of a forest. Many of the trees growing on Bureau of Land Management forests were sturdy saplings when civilization first touched our western lands, and were young giants when the General Land Office was established in 1812.

There are millions of trees on BLM lands—in forests totalling an area the size of Texas. These forest lands are scattered through all the Western States—including Alaska—with a complex ownership pattern ranging from huge blocks to isolated tracts of only a few acres.

Forest plans and management activities, devised for both forest giants and young seedlings, constitute one of the prime administrative functions of BLM's foresters. More than 400 professional foresters are employed, some of whom have received national recognition for their professional accomplishments.

Many good terms can be used to describe BLM's forestry program—multiple use, sustained yield, intensive and extensive forest management, forest conservation and balanced resource management. Sometimes these terms mean different things to different people.

The terms as used by BLM in speaking of its forests mean an action program and planning concept, in which lands are classified for the highest use. Any single classification must be modified to recognize other potential uses that can be made of a forest property. Thus we recognize that our forests produce wildlife, recreation, and watershed protection as well as timber.

The O&C Lands

BLM's chief forest assets, from the standpoint of rapid growth and intensive forest management, are land grants in western Oregon which were returned to the Federal Government in 1916.

Forest Resources

One grant—the O&C lands—was made to the Oregon and California Railroad Company for building a railroad from California to Portland, Ore. Another grant was to the Southern Oregon Company, to aid in constructing a military road from Coos Bay to Roseburg, Ore. The O&C and Coos Bay Wagon Road lands, containing some 2.1 million acres, are rated as some of the prime public forest properties in the world.

Log production from the Oregon lands is phenomenal—equal to a huge truck load of logs every 2½ minutes, 24 hours a day, continuously! This returns a daily gross income of nearly \$100,000—shared between the counties and the U.S. Treasury.

This young stand of Douglas fir is an example of the excellent timber found on the O&C lands of western Oregon. BLM's forest managers rate these lands as among the best public forest properties in the world.

Mature Trees Harvested

Good forest management requires that vigorously growing stands of timber of all ages be present. Mature trees must be harvested rather than allowed to become overage and to die, rot, and be wasted.

When a stand of mature trees has reached its top economic potential and growth, the trees are selected for a timber sale. These trees are then purchased by timber companies through public auction.

Although trees continue to grow some even in extreme old age, forest economists have shown that the most profitable time to harvest a stand is when the value of the wood added through annual growth begins to decline. Thus BLM foresters keep accurate records of the growth of timber stands, and make plans for timber sales when the stands begin to approach old age.

During the harvesting operation, the woods fairly thunder with activity—foresters, loggers, engineers, and log haulers all have specific and important work to do. While company engineers are laying out and constructing access roads, loggers are felling trees and bucking them into suitable lengths for hauling and milling.

BLM foresters maintain a close check on these activities to insure conformance with contract specifications. Under their supervision everything progresses according to the best known forest management practices. Finally the logs are loaded onto trucks and transported to the mills where they are converted into lumber and other forest products.





Reforestation of burned and denuded areas is an important activity supervised by BLM foresters. Much of the work must be done by hand in the mountain forests.

A good forest manager provides full protection for his trees from seedling stage to the end of the rotation period. BLM foresters maintain a watchful eye at all times for forest fires and also for insects and disease attacks. The most advanced forest protection techniques are used, ranging from aerial "bombing" of fires with chemicals to the inoculation of trees for disease prevention.

The Ultimate Beneficiary

BLM administers great acreages of forest lands and is performing a substantial part of the total job of public forest and woodland management. Recently

compiled figures show that the Bureau has jurisdiction over approximately one-third of the public forest acreage, and one-fourth of the volume of federal-owned timber. These figures do not include the non-commercial forest areas.

The public, for generations to come, is the ultimate beneficiary of the forest and woodland crops grown on public lands. BLM's timber management programs are geared to speed forest products to market while providing resource renewal through the most advanced reforestation techniques.

Timber sale programs are administered to encourage the primary purchaser to make full use of the product; BLM's sales practices induce the purchaser to remove all materials that might possibly have value. As new means are discovered for promoting fuller utilization of forest resources, they will be immediately put to use.

The next century will bring new and improved techniques for processing wood products, and also a variety of products now beyond the realm of imagination. Greater demands will be made on our forest resources; more on forests than almost any other source of raw materials because wood is a renewable natural resource.

Many foresee the woods operation of tomorrow as one where trees are fed into a pipeline in the form of fiber. Then the fibers would be reassembled and treated during the manufacturing process to create thousands of end products. BLM looks forward to such advanced technological changes and is already making plans that include the necessary program changes to meet continuing progress.



Clean waters produced by watersheds on BLM lands have a high value to municipal and industrial users of our streams. And of course the added value of recreation, particularly fishing, is another asset of the streams flowing from the forests.



Developing Our Land and Mineral Resources

by Jerry A. O'Callaghan

Assistant Director, Lands and Minerals

WESTWARD from the 100th meridian that almost bisects the plains of the two Dakotas, to the tip of the Aleutian Islands that reach outward toward the Asiatic land mass, the Bureau of Land Management administers some 468 million acres. Within these acres are a wide variety of resources—wealth such as never before represented in the heritage of a great people.

These lands have furnished homesites, homesteads, business and industrial sites, recreation and other public purpose tracts, mining locations, oil and gas leases, and millions of acres of grasslands for sheep, cattle and wildlife. Forests on the lands produce timber and many other types of vegetation protect the precious watersheds.

Classifying the Land

In administering these lands BLM attempts to let the nature of the land govern such important decisions as whether to retain the land for long-term management or to release the land for other types of ownership, public and private.

Information governing these decisions comes from land classification, an inventory of the present and

potential values of the land for various purposes. The authority to classify land is relatively new, being granted to the Secretary of the Interior by the Taylor Act of 1934.

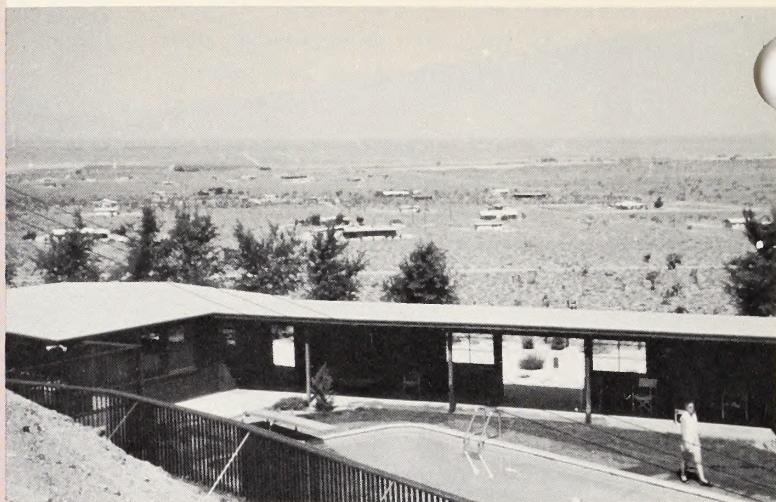
Recently BLM has organized its land classification program through a new and more meaningful concept—master units divided along topographic and economic boundaries reflecting the different needs of land users.

Master unit classifications involve three considerations. *Topography, land use and tenure patterns, and public values* each receive full recognition. In many arid areas the topography, presence or lack of available water, and types of vegetation are vitally important. Likewise, the ways in which the land is used and its relationship to adjacent lands aid in determining the best use. Public values, including recreation, watershed protection, and the needs of local governments are studied before classification.

In some instances a study of all factors indicates that the land would be put to best use through a program of disposition to the public. Isolated tracts and areas needed for urban, suburban and industrial uses often fall into this category.

Land classification is a time-consuming but important activity. Where information on future needs is lacking, and where circumstances do not require an immediate decision, plans are tailored accordingly. As the inventory progresses, however, we are gaining an impressive picture of the natural resources of our public lands.

Many of the lands near large cities are best suited for small tract development. The lands are sold at fair market value. Small tracts are classified as suitable and then often sold at public auction.



Developing the Resources

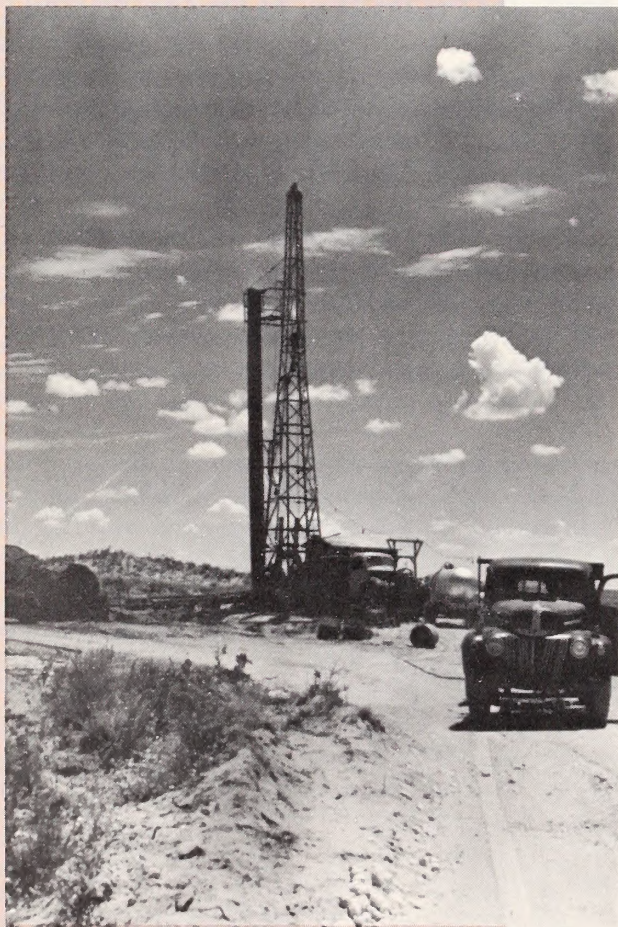
Development of the mineral resources of public lands are conducted under two systems of law. The metalliferous minerals may be acquired under the Mining Law of 1872, which permits a prospector to claim valuable minerals, with certain restrictions, where he finds them. The Minerals Leasing Act of 1920 provides for the orderly development of nonmetalliferous minerals, such as oil and gas, and is the basis for the leasing of millions of acres of potential and producing oil and gas fields.

The Mining Law of 1872 is an outgrowth of the colorful and often unwritten laws of the California Gold Rush of 1849. Born in the days when prospectors were ready to defend their claims with arms, the mining laws have been only slightly modified through the years to meet the changing times. Showing that prospecting is not a thing of the past, during 1960 there were 167 mining patents issued, covering 28,005 acres.

The minerals leasing program, covering the so-called "leasable" resources such as oil, gas, coal, and phosphates, stretches the Bureau of Land Management's duties far beyond the borders of the public land states.

Highly productive oil fields lie below the surface of the Gulf of Mexico, off Louisiana and Texas. Here, on the Outer Continental Shelf, the Bureau administers the sale of competitive leases for drilling rights. Last year oil companies paid more than \$50 million for Outer Continental Shelf oil and gas. Now the Bureau is preparing sales of leases off the coast of California, a rich and untapped field.

Competitive bidding and bonuses are required where explorations and development take place within str



The mineral values of our public lands are important to many industries. Here a crew drills for mineral samples in New Mexico.

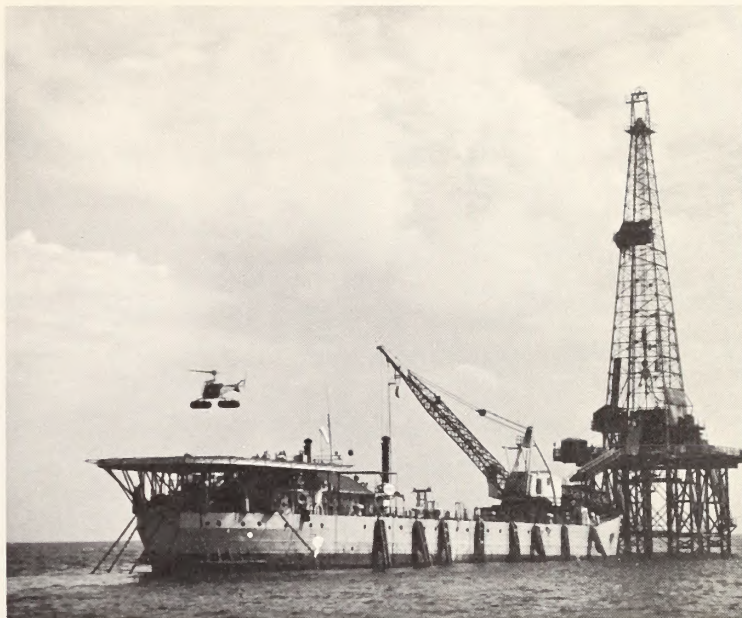


The prospect of valuable minerals brought many of the early settlers to the West, and still today the mining industry depends to a large extent on the hidden wealth which lies beneath the surface of our public lands.

tures of known geologic fields. Elsewhere, noncompetitive leases are issued for "wildcat" explorations, and vast acreages are being searched for untapped reservoirs of petroleum and gas.

Vital National Assets

Three centuries ago, new settlers arriving in the American colonies could look westward toward an unknown and untapped world. And within the memory of citizens living today, the natural resources of the United States were largely thought to be inexhaustible.



Offshore drilling for oil is a booming activity on the Outer Continental Shelf. In a recent lease sale, oil companies bid nearly a billion dollars for drilling rights on submerged tracts off Texas and Louisiana.

Today we recognize that some vital national assets are not renewable, that no more land is being created and no more minerals are being deposited beneath the Earth's surface. What we have now is all there is.

Anticipating the nation's continued growth, with increasing demands for lands for many purposes and increasing needs for minerals for many industries, we must look beyond the immediate requirements of today. With all the wealth that today's Americans inherited, we cannot afford the luxury of haphazard use of our resources of tomorrow.

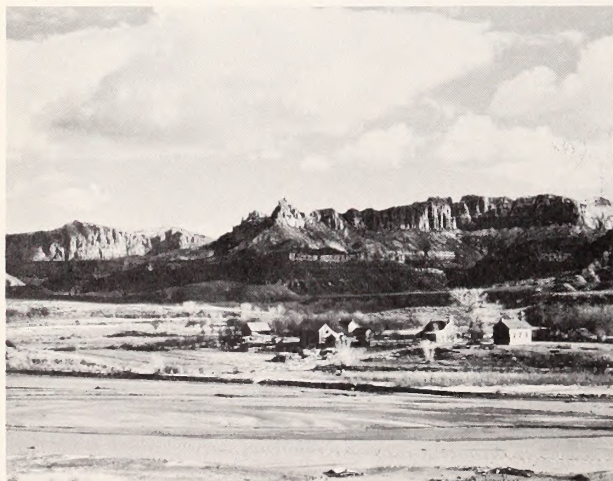




Rainfall in the arid areas of the national land reserve is a rare and precious thing—coming in winter snows and infrequent summer showers such as the cloudburst above.

Water—Precious Asset of the Land

Rainfall in dry loamy soils acts as an impressive agent in changing the face of the land. Sculpturing cliffs and towering spires, the falling waters also can create havoc as flash floods sweep the usually quiet rivers.



Water controlled can be the greatest asset of the livestock industry. These New Mexico sheep graze on the grass produced by the scant rainfall, some of which is collected in the stock-watering tank in the distance.



MILLIONS of acres of the national land reserve lie in arid regions where scant rainfall is the dominant factor in the productivity of the land. Although the total precipitation in the forms of rain and snow annually may total less than 10 inches, sudden storms can cause flash floods that create gullies and spread destruction over wide areas. The Bureau's program of constructing water spreading and other control structures does much to retard the destructive forces and to retain the water where it belongs—on the land where it falls.

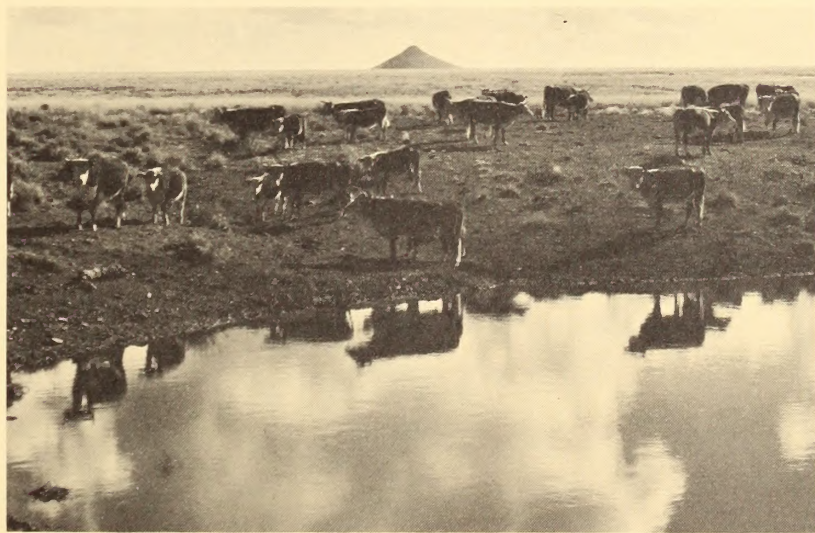


Scarce though it is, the rainfall that has carved gullies and valleys in this area of public land in Nevada has created problems of soil erosion for the range manager.

Making the desert more productive, this water control structure was constructed many years ago on the national land reserve during a prewar land utilization program.



The plants of our arid lands have adapted to life with a minimum of water. Many grotesque forms have developed, including the picturesque cholla cactus of Arizona.



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THE HERITAGE WE GUARD

THE day is irrevocably past that a man could cross the Mississippi and simply choose a homestead for himself from the vast open public domain. Gone, too, are the days of the freeranging buffalo that once roamed the prairies in great herds; only remnants remain in parks and wildlife refuges.

Yet the land is still there, the rolling grasslands and the rugged peaks and parched desert valleys that once challenged the wagon trains of the hardy pioneers. The rivers still flow, the fleet-footed deer still browse at the edge of the whispering forest. Beneath the rocky crags and nodding flowers that purple the slopes in the spring lie rich veins of minerals, still untapped by the prospector's pick.

These treasures, of forests, soil, water, and wildlife, and the incomparable reserve of open spaces beyond the cities' clamor—these are our heritage. We may use and enjoy this heritage, yet we must guard it so that we may pass it on to future generations, satisfied in the knowledge that we have used it wisely.—Editor.

